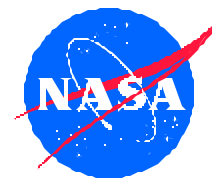


# Application of GaS in the Passivation of GaAs and Related Alloys

**GALLIA, Inc.  
Weston, MA**



## **INNOVATION**

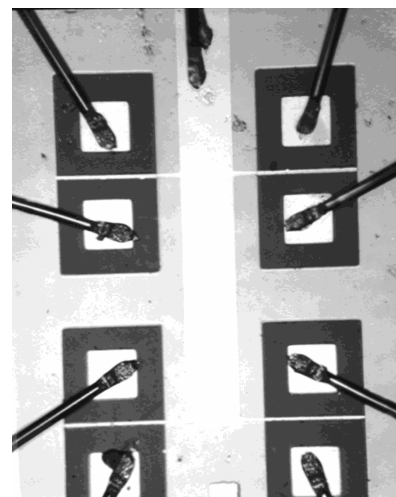
A surface coating of Gallium Sulfide (GaS) for  
Gallium Arsenide (GaAs) and other III-V solar cells

## **ACCOMPLISHMENTS**

- ◆ Discovered a stable cubic phase of GaS that could passivate the surface of GaAs solar cells, other optoelectronic and microelectronic devices
- ◆ Developed techniques for determining surface passivation
- ◆ Developed new passivation technology

## **COMMERCIALIZATION**

- ◆ **This passivation technology is used in all cell phones**
- ◆ TRI-QUINT, a manufacturer of microelectronic and optoelectronic devices, purchased GALLIA, Inc. and the passivation technology. The passivation technology was used to improve their GaAs discrete devices



***4 Metal-Semiconductor Field-effect Transistors (MESFETs) with GaS Passivation between the GaAs Semiconductor and the Gate Metal***

## **GOVERNMENT/SCIENCE APPLICATIONS**

- ◆ It is used or can be used on solar cells and other GaAs devices for many NASA missions
- ◆ NASA and the Military benefits by increases in “End of Life” efficiency and reliability with this technology